

Figure 1

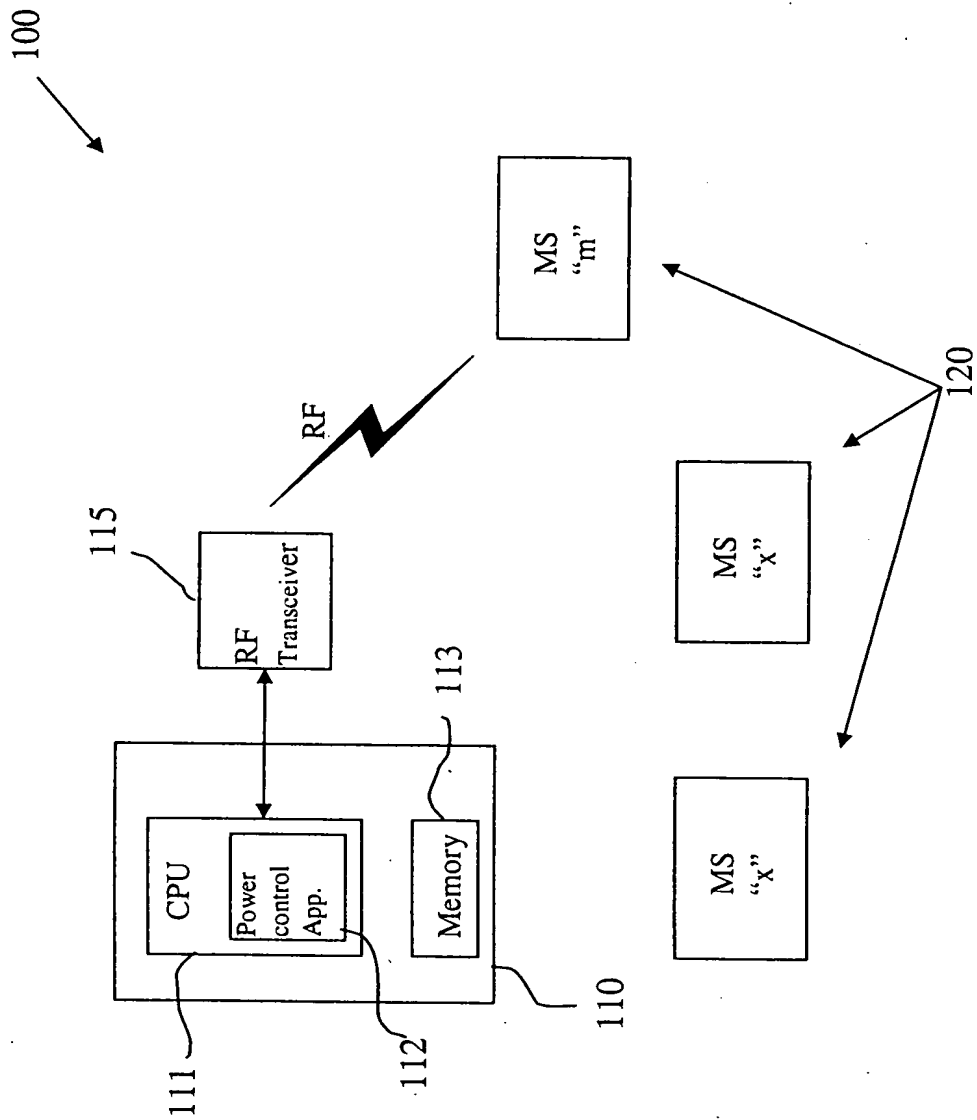


Figure 2

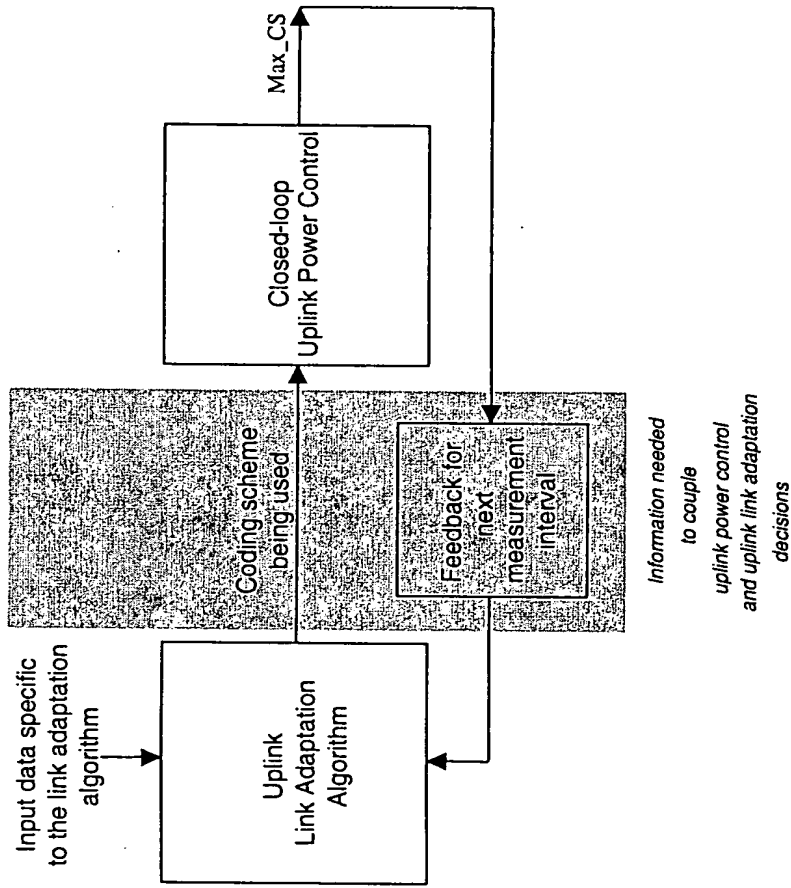


Figure 3

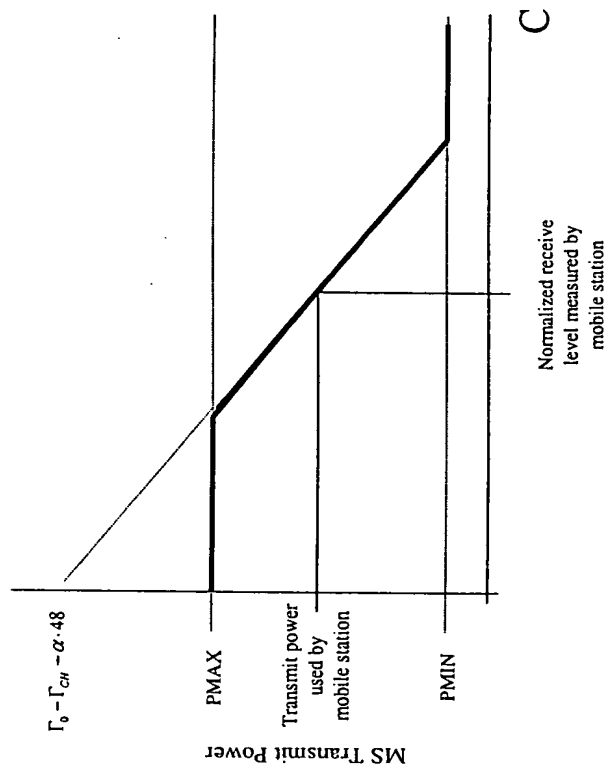


Figure 4

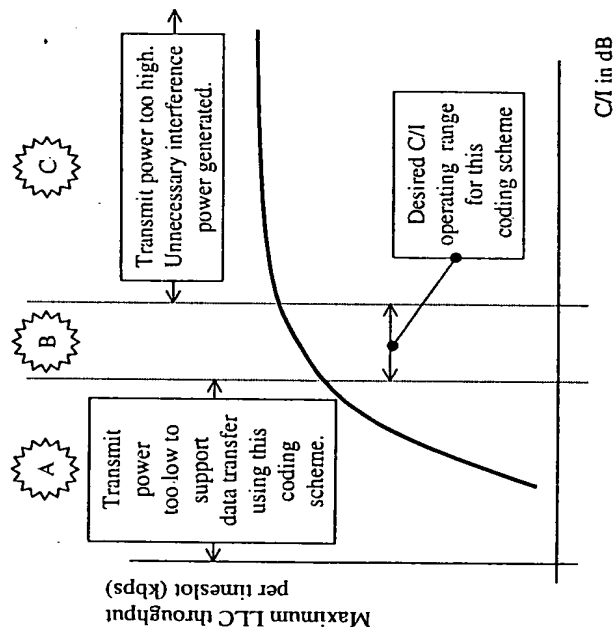


Figure 5 shows the relationship between the carrier-to-interference ratio (C/I) and the bit error rate (BER) for a digital communication system. The graph plots $\ln(\text{BER})$ on the vertical axis against C/I (dB) on the horizontal axis. A solid line represents the desired BER performance, while a dashed line indicates the equivalent BER performance. The shaded region between these lines is labeled "Equivalent Desired BER Range". A horizontal line marks the "Desired C/I Range".

Figure 5

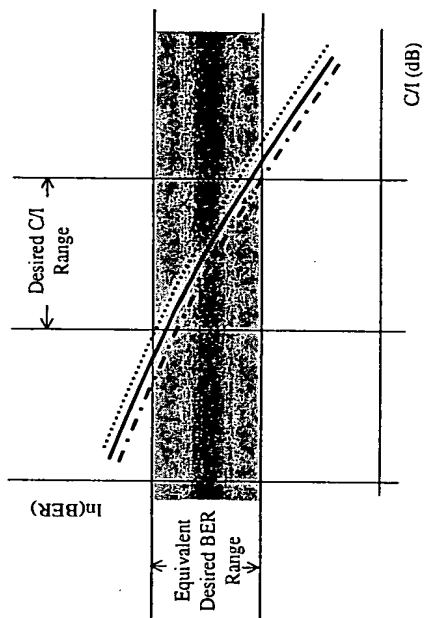


Figure 6

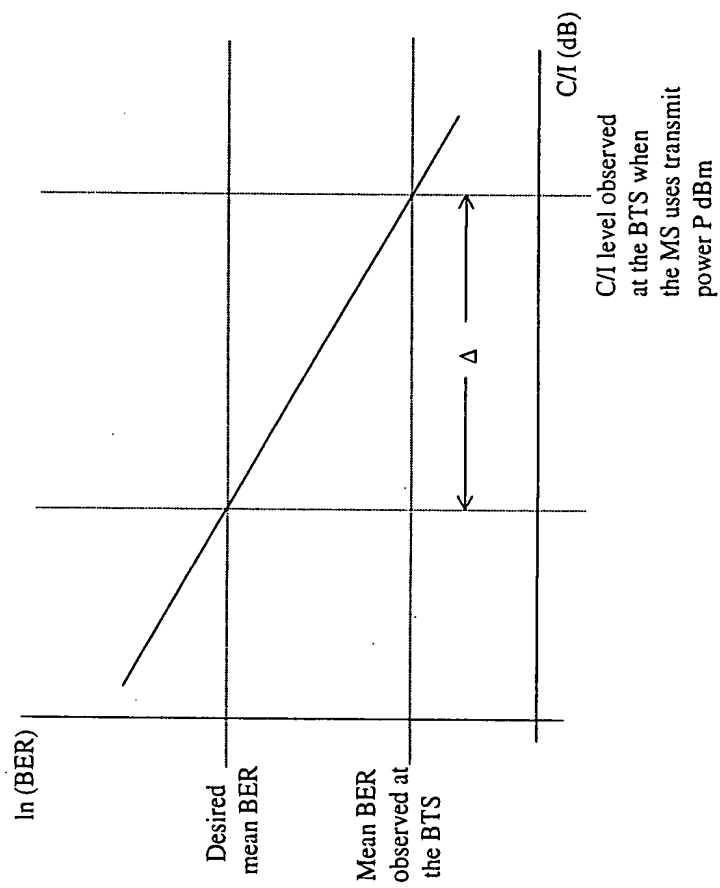


Figure 7

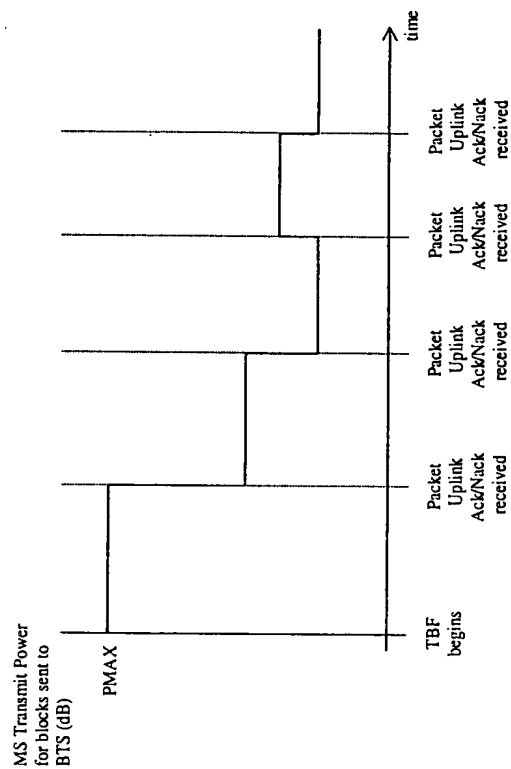


Figure 8 is a diagram illustrating the power control process in a mobile communication system. The diagram shows the relationship between the MS Transmit Power for blocks sent to the BTS (dB) and the Uplink Transmit Power (if channel quality estimates from previous TBFs are not cached). The power control process involves adjusting the transmit power based on the received signal quality, ensuring that the power is maintained at a level that allows for successful transmission of data blocks.

Figure 8

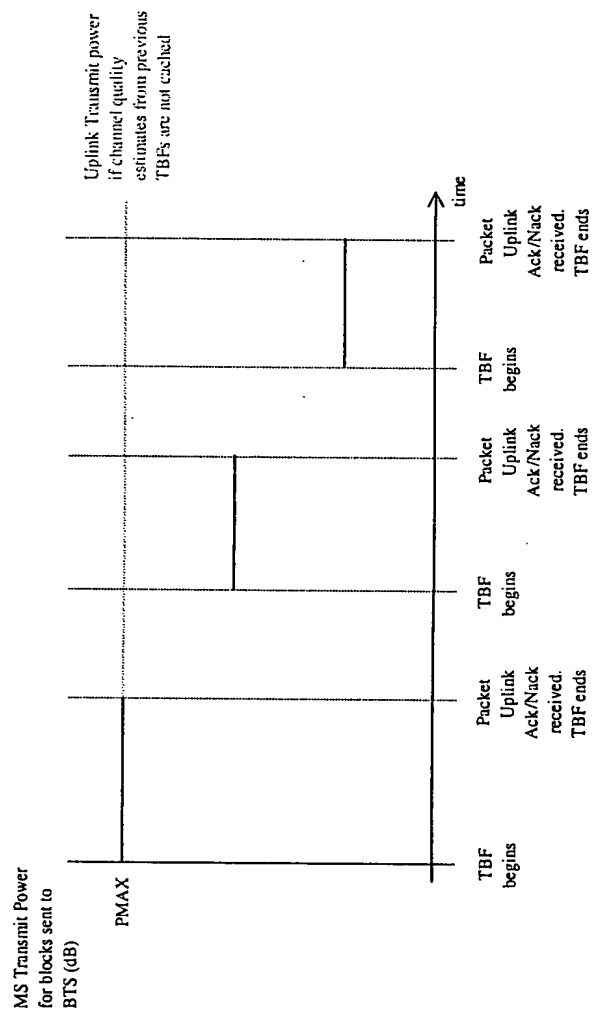


Figure 9

900

Key:

Explanation of variables used:

S^m = set of time slots being used by UL TBF; note that S^m has only one element if TBF is single-slot.

S_{old}^m : this relates to TBF reassignment. We use S_{old}^m to denote the set of time slots which were being used by the TBF before reassignment.

N_{ul} : used in Quick ACK mode; denotes the total number of RLC blocks received since the TBF was established.

k_{tot} : also used in Quick ACK mode; denotes the total number of RLC blocks out of N_{ul} which were received incorrectly.

$FN_{new}(s)$ = all UL RLC blocks received on time slot s after $FN_{new}(s)$ are assumed to have been transmitted using the updated value of $\Gamma_{CH}(s)$.

Quick_ACK_mode : when set, it denotes that the ULPCA is in the Quick ACK mode.

CS_{LA} : set to be 2 at the beginning of a TBF. will be the output of the link adaptation algorithm to be used by the power control algorithm during the transmission of a TBF.

MAX_CS : set to be 2 at the beginning of a TBF. will be the output of the power control algorithm to be used by the link adaptation algorithm.

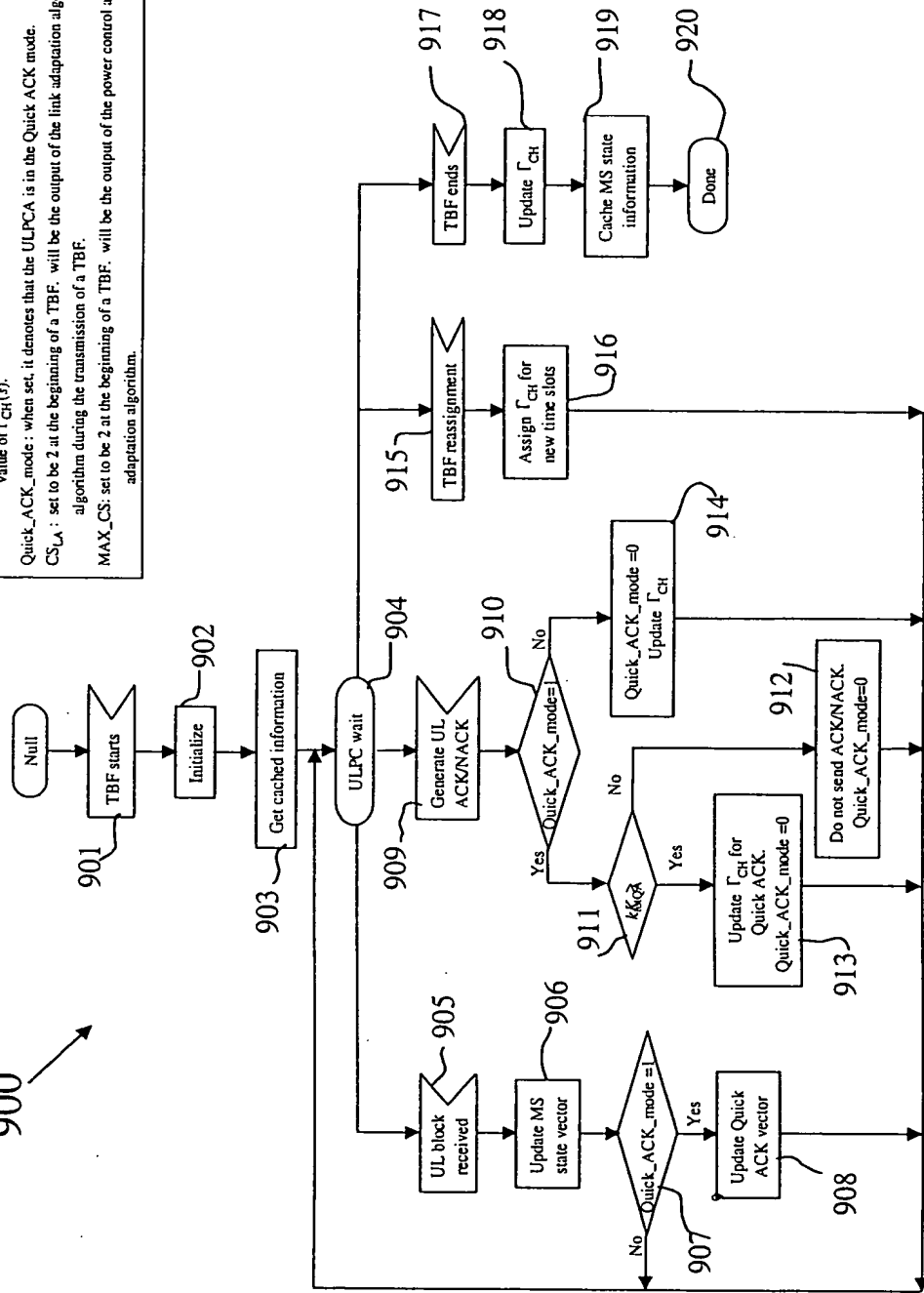


Figure 10

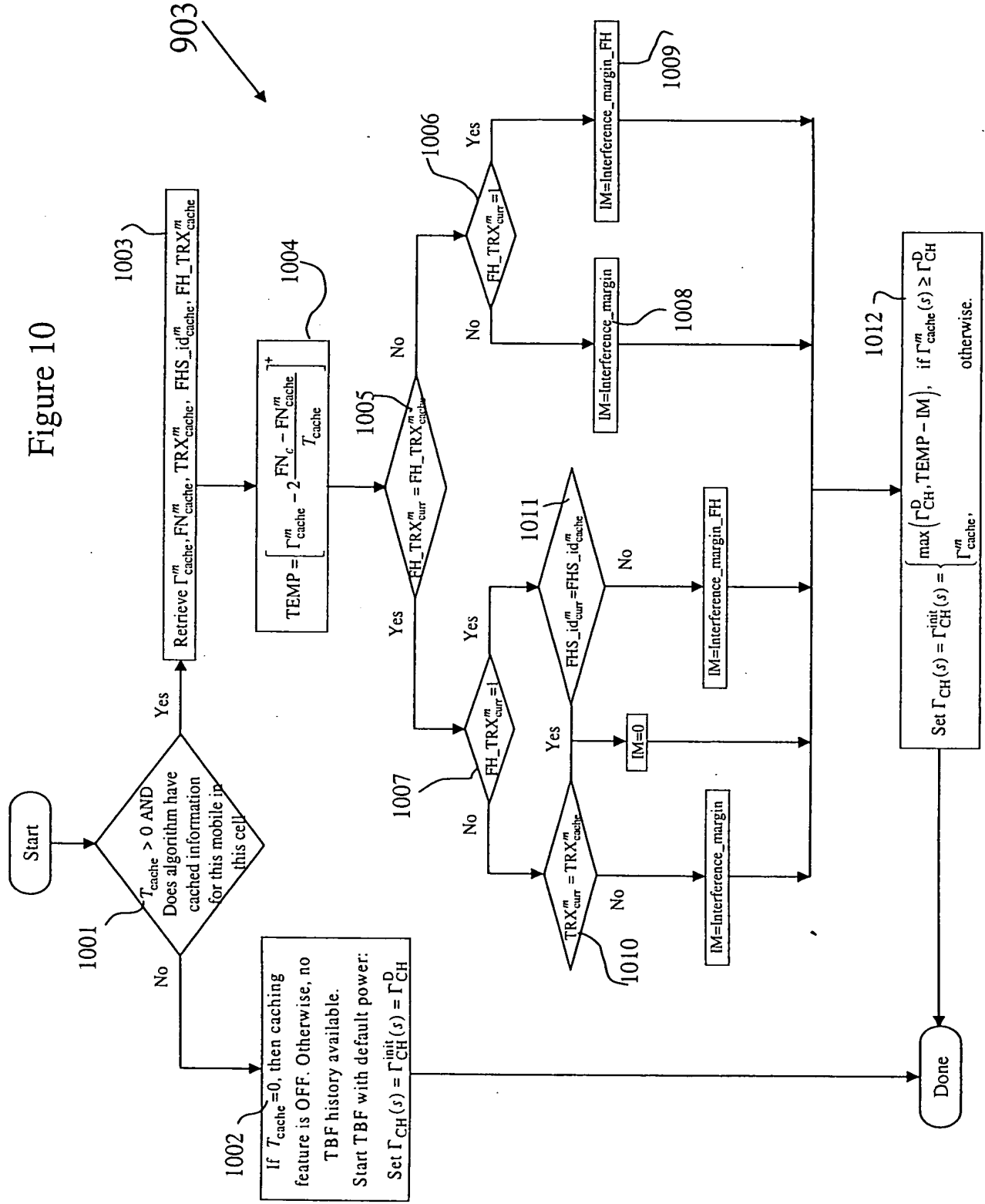


Figure 11

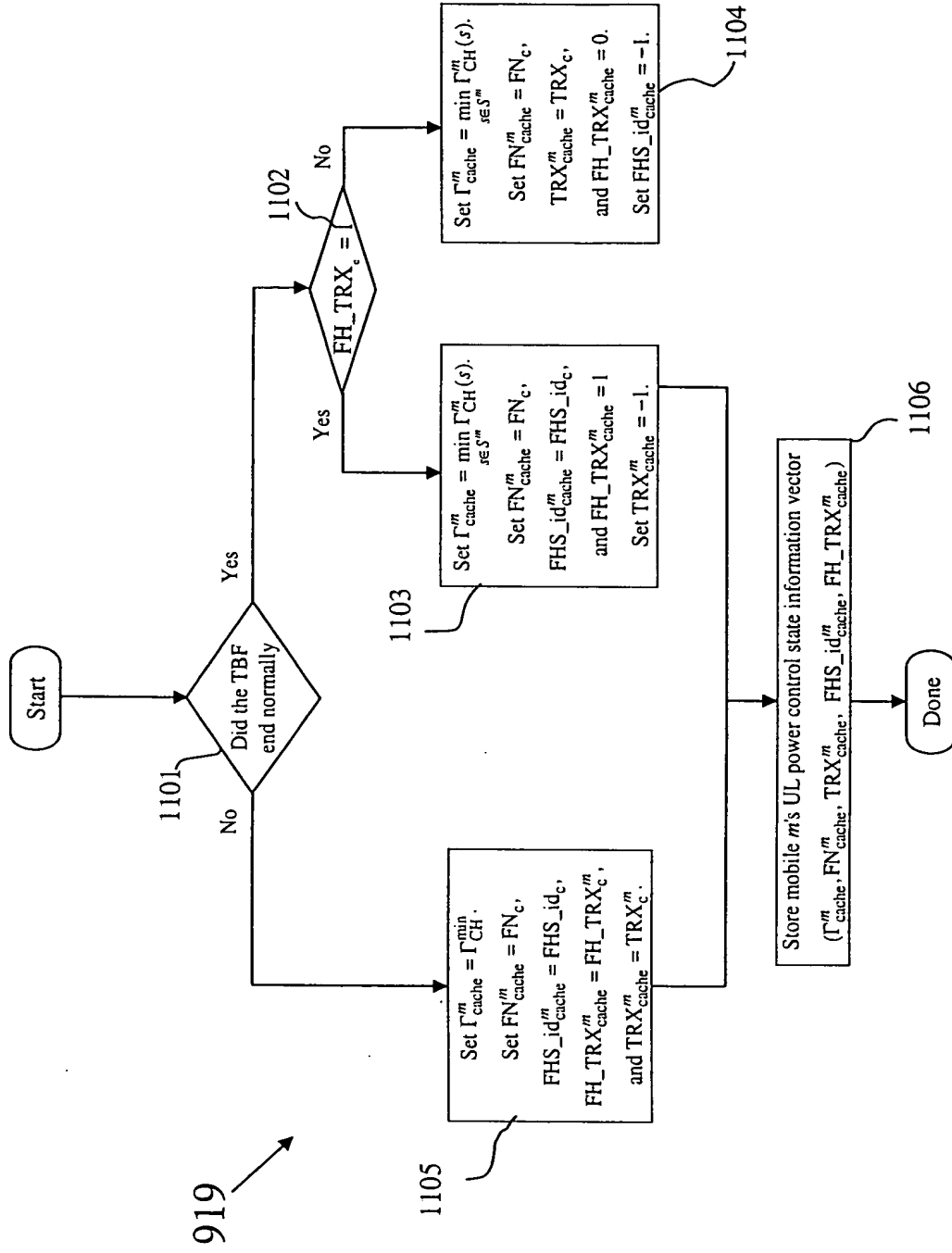


Figure 12

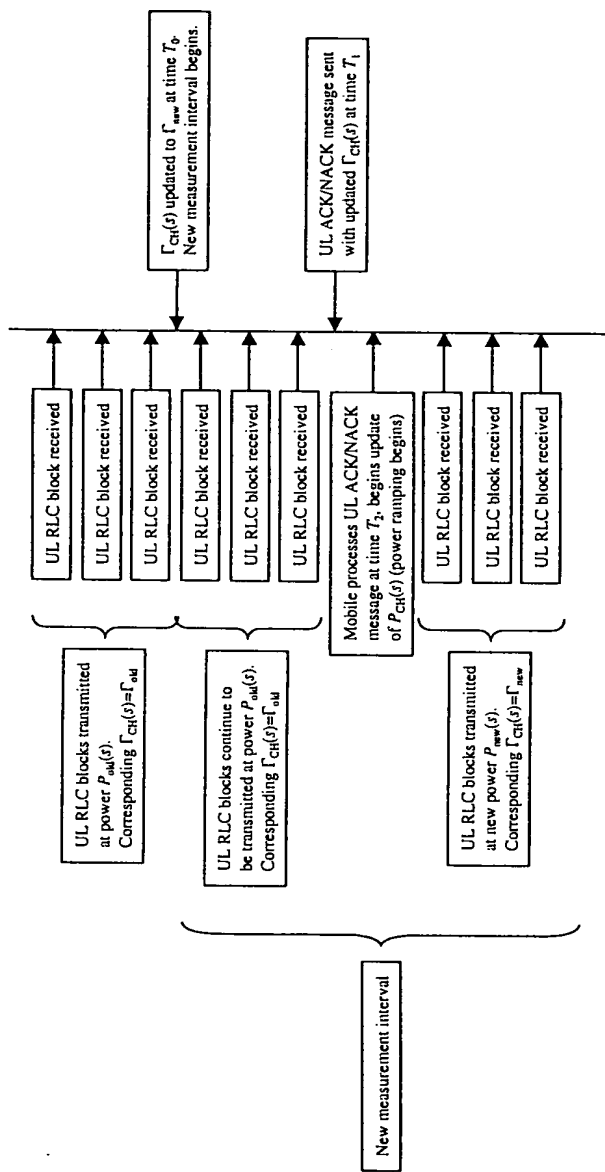


Figure 13

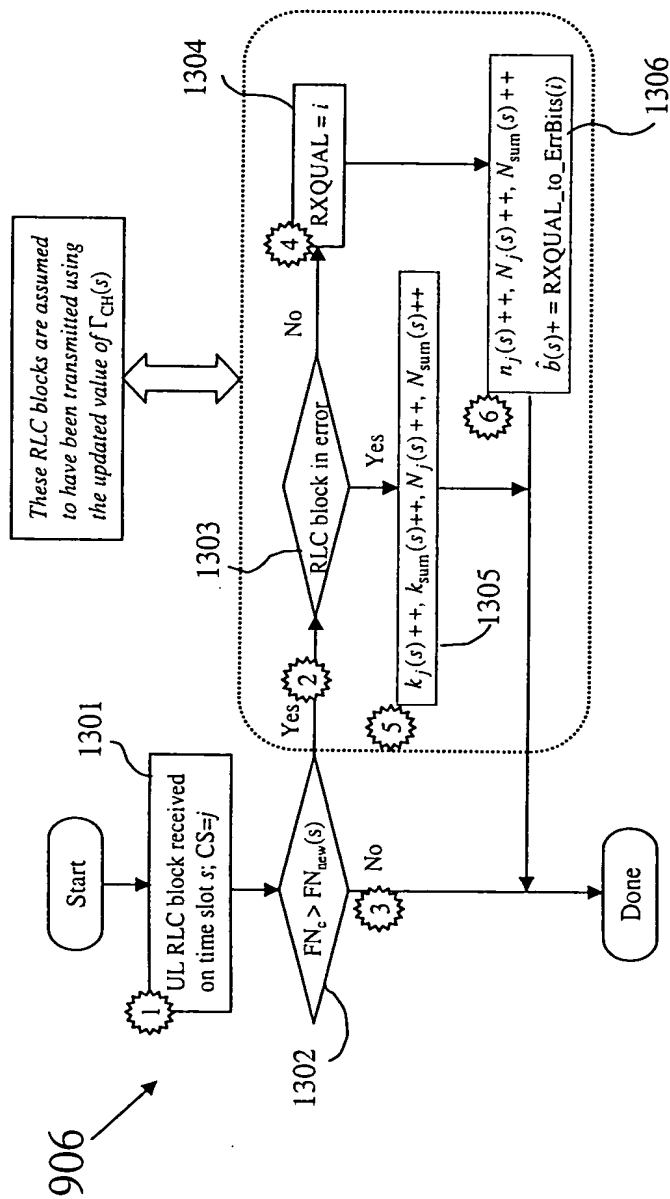


Figure 14

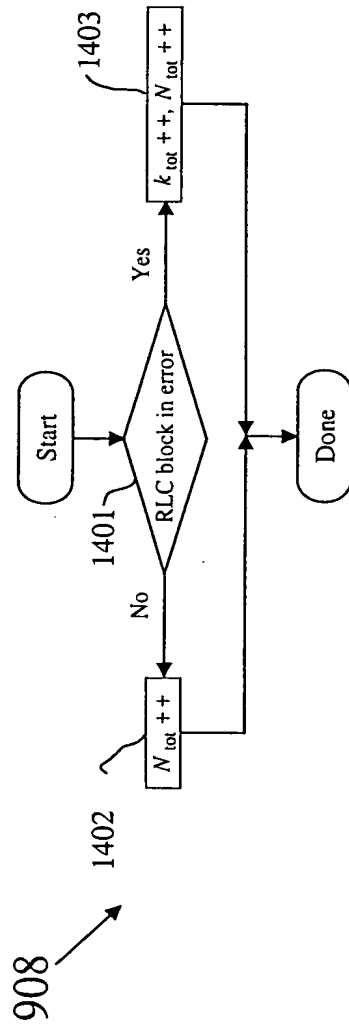


Figure 15

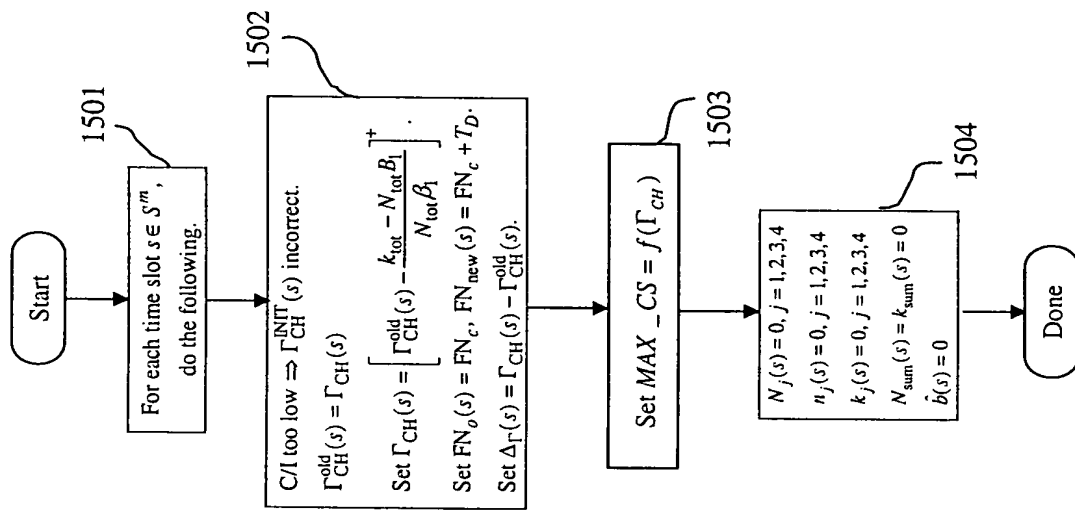


Figure 16

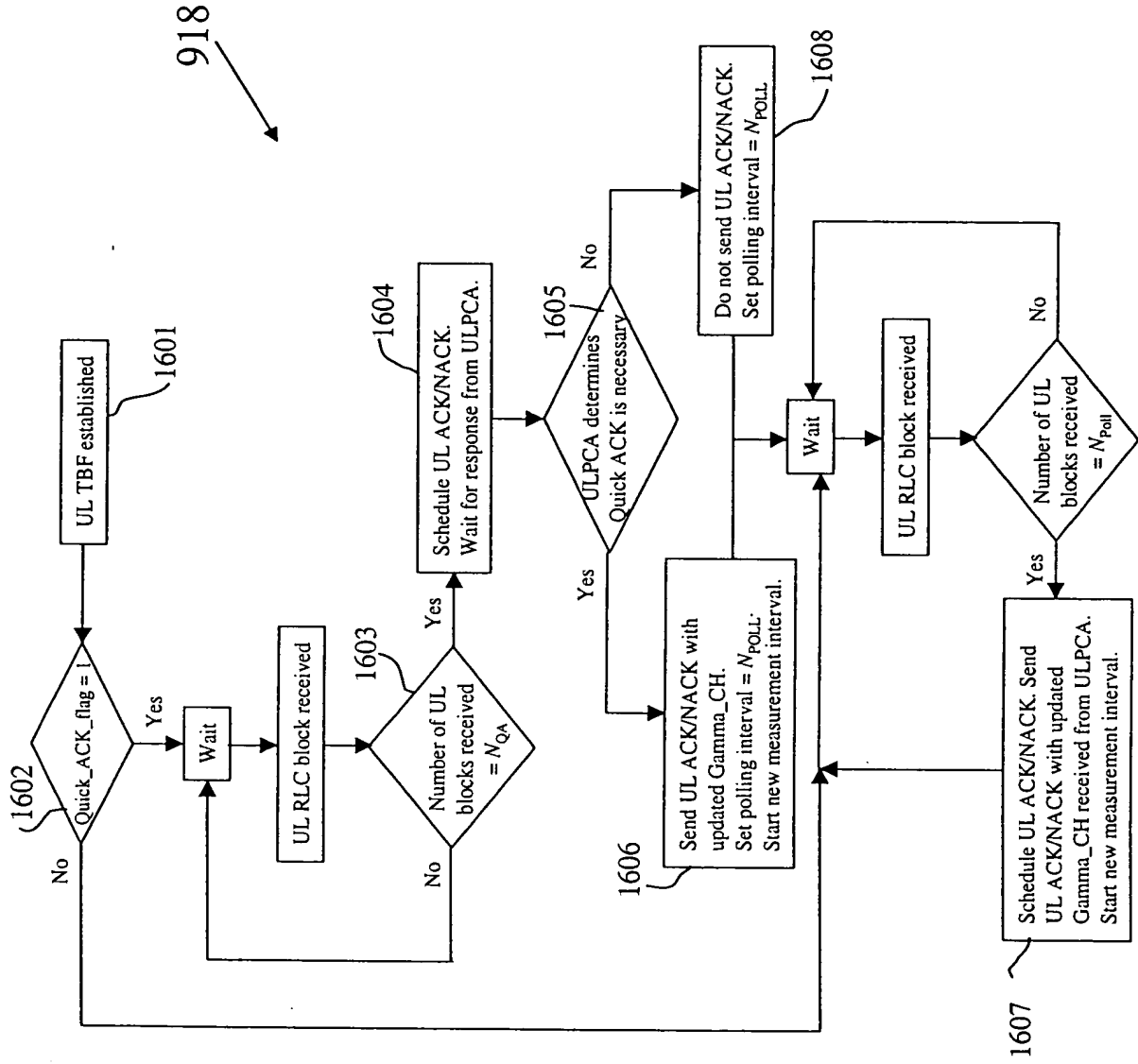


Figure 17

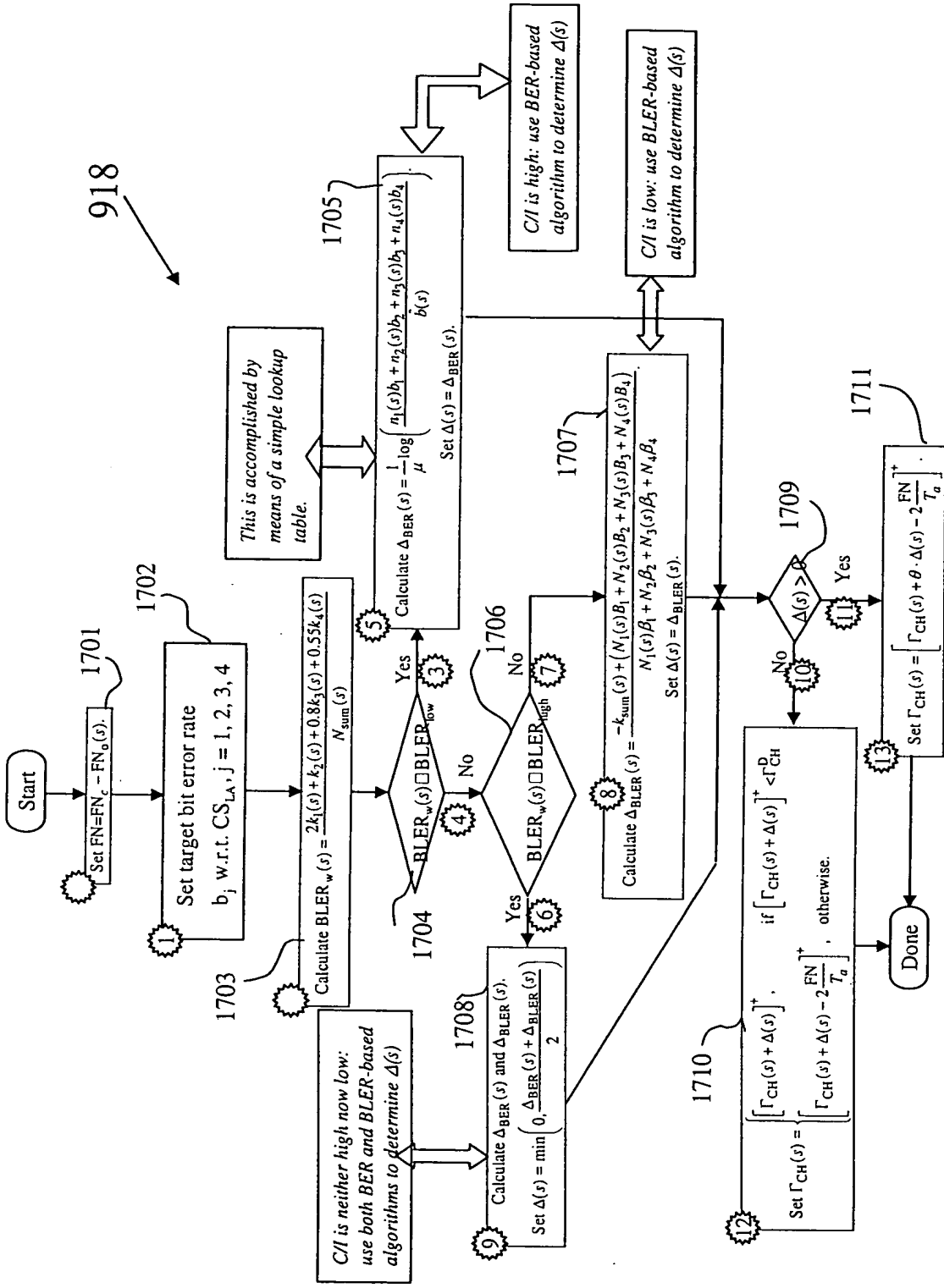
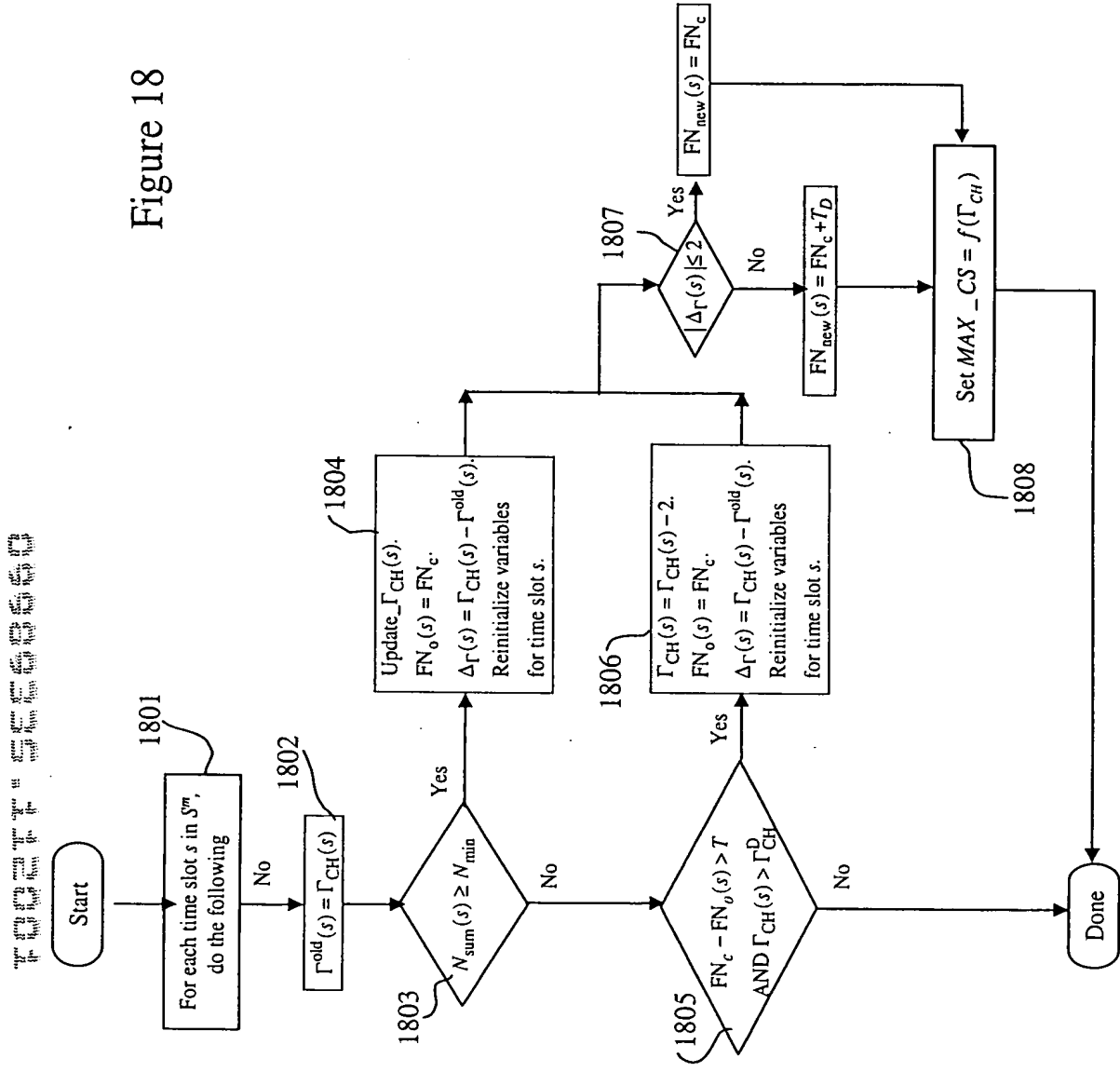


Figure 18



Key:

Reinitialization of variables for time slot s :

- $N_j(s) = 0, j = 1, 2, 3, 4$
- $n_j(s) = 0, j = 1, 2, 3, 4$
- $k_j(s) = 0, j = 1, 2, 3, 4$
- $N_{\text{sum}}(s) = k_{\text{sum}}(s) = 0$
- $\hat{b}(s) = 0$

Figure 19

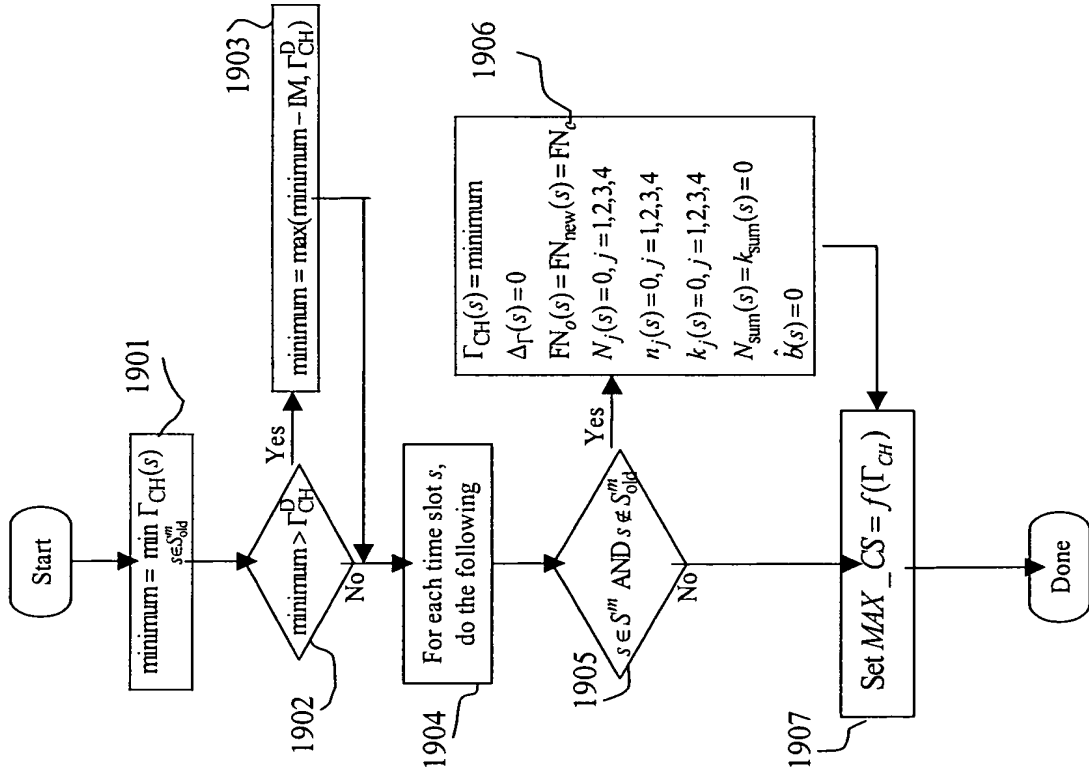


Figure 20

